

Brief on Appeal for U.S. Serial No. 08/717,042 Filed September 20, 1996

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND
INTERFERENCES



In re the application of:
 IGOR PALLEY ET AL.

Docket: 30-3744CIP1

Serial Number: 08/717,042

Group Art Unit: 3727

Filed: September 20, 1996

Examiner: N. Eloshway

For: BLAST RESISTANT AND BLAST DIRECTING CONTAINER

Colonial Heights, VA 23834
 April 10, 2001

BRIEF ON APPEAL

Assistant Commissioner for Patents
 Washington, D.C. 20231

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Sir:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Primary Examiner dated October 26, 1999, finally rejecting claims 1, 3-11, 13-47 and 51-53. A Notice of Appeal was filed on April 26, 2000. The Commissioner is authorized to charge the Appeal Brief Filing Fee (37 CFR §1.17c)) of \$310.00 to Deposit Account No. 01-1125. The Commissioner is authorized to charge \$1,390.00 for a four (4) month extension fee (37 CFR § 1.17(a)(4)) for responding to this Notice of Appeal or any additional fees which may be required by this paper, or credit any overpayment to Deposit Account No. 01-1125.

Adjustment date: 04/30/2001 LGIBBS
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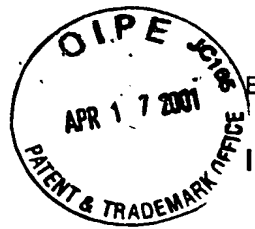
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I. **REAL PARTY IN INTEREST**

The real party in interest is Honeywell International Inc., successor in interest to AlliedSignal Inc., who is the assignee of record.

II. **RELATED APPEALS AND INTERFERENCES**

There are no other related applications on appeal or subject to an interference that are known to appellant, appellant's legal representative or the assignee that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal. The parent of the present application, USSN 08/533,589, filed September 25, 1995, has claims (numbered 1-6, 8-38, 42-57, 74-76) under final rejection by the same Examiner, Niki M. Eloshway.

III. **STATUS OF CLAIMS**

Claims 1, 3-11, 13-47 and 51-53 are presented on appeal. These claims have been finally rejected in the Office Action identified above. A copy of the claims is reproduced in the Appendix (Section IX).

Claim 2 has been canceled. Claims 12, 48-50 and 54-66 have been withdrawn from consideration by the Examiner as directed to a non-elected species. No claims are allowed.

IV. **STATUS OF ALL AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION**

There have been no amendments filed subsequent to the issuance of the Final Rejection mailed October 26, 1999.

V. **SUMMARY OF THE INVENTION**

The invention is a blast resistant container assembly and a blast directing container assembly, each of which comprises a container with blast mitigating material, preferably an aqueous foam, more preferably an aqueous foam having a density in the range of from about 0.01 to about 0.10 g/cm³, located therein. Some of the containers are collapsible. In one embodiment, the container comprises a plurality of faces that are connected at a common edge with fibrous material functioning as a hinge between the faces. In an alternate embodiment, the container is formed by a plurality of bands of specific orientation, at least one



of which is formed of a blast resistant material. In the blast-directing embodiment, the container assembly includes at least one closed band comprised of high strength fibers, at least about 50 weight percent of which comprise continuous lengths in the direction of the band. These container assemblies in combination with blast mitigating material located therein can withstand tremendous pressures and resist pulling apart after an explosion within the container assembly.

VI. ISSUES

The issues in this appeal are:

A. whether claims 1, 8, 10, 11, 13, 15, 19, 33 and 46 are unpatentable under 35 U.S.C. §103(a) over Galber (USP 4,915,291) in view of MacDonald et al. (USP 3,822,807);

B. whether claims 3-6, 16-18, 20-28, 30, 35-43 and 45 are unpatentable under 35 U.S.C. §103(a) over Galber in view of MacDonald et al., as applied to claims 1, 2 (sic), 15 and 33 above, and further in view of Prevorsek et al. (USP 5,545,455);

C. whether claims 1, 9, 33 and 46 are unpatentable under 35 U.S.C. §103(a) over Galber in view of Gettle et al. (USP 5,225,622);

D. whether claims 3, 4, 7, 20, 23, 27, 29, 31, 35, 38, 42 and 44 are unpatentable under 35 U.S.C. §103(a) over Galber in view of Gettle et al., as applied to claims 1, 2 (sic), and 33 above, and further in view of Prevorsek et al.;

E. whether claims 1, 10, 11, 14, 33 and 34 are unpatentable under 35 U.S.C. §103(a) as being over Lewis (USP 674,009) in view of MacDonald et al.;

F. whether claim 32 is unpatentable under 35 U.S.C. §103(a) over Prevorsek et al. in view of Lewis and Gettle et al.;

G. whether claims 47, 51 and 52 are unpatentable under 35 U.S.C. §103(a) over Galber in view of MacDonald et al. and Prevorsek et al.; and

H. whether claims 47 and 53 are unpatentable under 35 U.S.C. §103(a) over Galber in view of Gettle et al. and Prevorsek et al.

VII. GROUPING OF CLAIMS

Claims 1, 8, 10, 11, 13, 15, 19, 33 and 46 are grouped together by the Examiner. Appellants respectfully submit that these claims, as a whole, do not



stand or fall together. Specifically, claims 1, 8, 15 and 19; claims 10, 11 and 13; and claims 33 and 46 are directed to independent, but related, inventions.

Claims 3-6, 16-18, 20-28, 30, 35-43 and 45 are also grouped together by the Examiner. Appellants respectfully submit that claims 35-43 and 45 should not be grouped with the balance of these claims since they are directed to an independent, but related, invention, i.e., these claims as a whole, do not stand or fall together.

Claims 1, 9, 33 and 46 also are grouped together by the Examiner. Appellants respectfully submit that claims 33 and 46 should not be grouped with the balance of these claims since they are directed to an independent, but related, invention, i.e., these claims as a whole, do not stand or fall together.

Claims 3, 4, 7, 20, 23, 27, 29, 31, 35, 38, 42 and 44 are grouped together by the Examiner. Again, Appellants respectfully submit that these claims as a whole, do not stand or fall together, since claims 35, 38, 42 and 44 are directed to an independent, but related, invention with respect to the balance of the claims.

Claims 1, 10, 11, 14, 33 and 34 are grouped together by the Examiner. Appellants again respectfully submit that these claims as a whole, do not stand or fall together, since claim 1 and claims 33-34 are directed to independent, but related, inventions with respect to the balance of the claims.

VIII. ARGUMENTS

With reference to the claims groupings, there are three instances where the Examiner has grouped independent claims together. Claims 1, 10 and 33 are grouped for rejection, as in Section VI.A., and claims 1 and 33 are grouped for rejection, as in Sections VI.C and VI.E. In the rejections under Sections VI.B and VI.D, dependent claims are grouped that are distinct.

With reference to claims 1, 10 and 33, the container assembly of claim 1 is both collapsible for storage when empty and comprises fibrous material connecting container faces, whereas the container assembly of claim 10 requires collapsible bands without specifying fibrous material, and the container assembly of claim 33 has neither limitation. It is submitted that these claims and those dependent therefrom should therefore be considered independently.



A. Are claims 1, 8, 10, 11, 13, 15, 19, 33 and 46 unpatentable under 35 U.S.C. §103(a) over Galber (USP 4,915,291) in view of MacDonald et al. (USP 3,822,807)?

The references, alone or together, neither teach nor suggest the blast resistant container assembly of claims 1, 8, 10-11, 13, 15, 19, 33 and 46, for the reasons that follow.

It is the Examiner's position that Galber discloses the claimed invention except for the blast mitigating material. This is not so. Galber discloses a self-sealing modular packaging envelope or container, formed from a tubular body with a cover on either end. After complete assembly of the container, the self-sealing function (a fixed coupling) prevents opening of the container without the forcible, destructive removal of at least one of the covers. See column 2, lines 46-48. Furthermore, there are no specific materials of construction set forth; rather, "...any suitable materials, depending on the provided use for the container..." can be used. See column 2, lines 35-37. Impermeable materials are broadly referred to as suitable for use in "...packaging grains, powders, liquids and so on." See column 2, lines 38-40. One advantageous use disclosed is for hospital waste materials, i.e., as a medical waste container. It is clear therefore that the inventor's contemplated use for the envelope or container is as packaging designed for disposal or destruction – one-time use. There is nothing to teach or suggest that the packaging envelope or container is blast resistant or designed so as to receive an explosive. And contrary to the Examiner's assertion, Appellants can find nothing in Galber to teach or suggest a fibrous material as a suitable choice for construction. If one assumes, arguendo, that Galber does suggest the use of appropriate fibrous material, the design of the Galber container is still unable to take advantage of the tensile strength of the fibrous material for two reasons. First, the pressure resistance of the central tube (tubular body) of the Galber container is limited by the shear strength of the bond of the narrow flap extending from the fourth face to the first face. Secondly, the closure provided by the two box-like bodies is only sufficient to withstand de minimus pressures. It is respectfully submitted therefore, that Galber does not teach the claimed invention.

MacDonald et al. fails to supply the deficiencies of Galber. MacDonald et al. teaches the use of reticulated foam balls as explosion suppressing means in

ullage-containing containers. This, in and of itself, will not make the ineffective container of Galber effective to withstand a blast. There is nothing in McDonald et al. that teaches or suggests the collapsible container of blast resistant material claimed by Appellants in claims 1, 8, 10-11, 13, 15 and 19, nor the fibrous material of claims 1, 8, 15 and 19. It is respectfully submitted, therefore, that MacDonald et al. is no more relevant than the art cited by Appellants in the paragraph bridging pages 2 and 3 of the specification.

The Examiner states that "[t]he material of the Galber container is considered fibrous." There is nothing cited to support this statement. As previously indicated, Galber only mentions that the bodies can be made from any material suitable to the use for the container. See Column 2 at lines 34-37. The only way that one can arrive at Appellants' claimed fibrous material from Galber and/or MacDonald is with the impermissible use of hindsight, not by what either of these references fairly teaches.

B. Are claims 3-6, 16-18, 20-28, 30, 35-43 and 45 unpatentable under 35 U.S.C. §103(a) over Galber in view of MacDonald et al., as applied to claims 1, 2 (sic), 15 and 33 above, and further in view of Prevorsek et al. (USP 5,545,455)?

The references, alone or together, neither teach nor suggest the blast resistant container assembly of claims 3-6, 16-18, 20-28, 30, 35-43 and 45, for the reasons that follow.

The prior discussion with respect to Galber and MacDonald et al. is incorporated here. With reference to Prevorsek et al., Appellants have acknowledged that the fibers and matrices disclosed therein have utility in Appellants' claimed invention. However, Appellants respectfully disagree with the Examiner's assertion that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the modified container of Galber with the fibrous material of Prevorsek et al., in order to make a container with improved penetration resistance. As stated previously, the Galber containers are designed to be disposed of after a single use, and there is absolutely nothing in Galber to suggest that the containers should be used to contain explosives.

With reference to the citation of In re Aller by the Examiner, Appellants are of the opinion that this is inapposite to the case at hand. First, Appellants

believe that the general conditions of its claims are not disclosed in the prior art. With respect to the number/percentage of fibers that should be "substantially continuous," Appellants would note that the nature of the blasts/explosions that were tested with the claimed container assemblies were significant – the amounts of C4 and Trenchrite 5 utilized to test these containers (and establish C50 values) were lethal. Fiber content and orientation was demonstrated to vastly enhance ballistic performance – see Example 5 versus Example 6 wherein a fiber fraction increase of 50% resulted in a 50% increase in the C50 value. See In re Antonie, 195 USPQ 6 (CCPA 1977).

C. Are claims 1, 9, 33 and 46 unpatentable under 35 U.S.C. §103(a) over Galber in view of Gettle et al. (USP 5,225,622)?

The references, alone or together, neither teach nor suggest the blast resistant container assembly of claims 1, 9, 33 and 46, for the reasons that follow.

The prior discussion with respect to Galber is incorporated here. The Gettle et al. reference fails to supply the deficiencies of Galber. Gettle et al. teaches the use of aqueous foams as a pressure attenuation medium for shock waves in a porous container. There is nothing in Gettle et al., however, that teaches or suggests the collapsible container of blast resistant material claimed by Appellants, nor the fibrous material of the claims. There is furthermore no motivation to combine these two references. The Galber reference discloses disposable packaging containers whereas the Gettle et al. reference discloses reusable assemblies for attenuation of pressures.

D. Are claims 3, 4, 7, 20, 23, 27, 29, 31, 35, 38, 42 and 44 unpatentable under 35 U.S.C. §103(a) over Galber in view of Gettle et al., as applied to claims 1, 2 (sic), and 33 above, and further in view of Prevorsek et al.?

The references, alone or together, neither teach nor suggest the blast resistant container assembly of claims 3-4, 7, 20, 23, 27, 29, 31, 35, 38, 42 and 44, for the reasons set forth above with respect to Galber, Gettle et al., and Prevorsek et al.

E. Are claims 1, 10, 11, 14, 33 and 34 unpatentable under 35 U.S.C. §103(a) over Lewis (USP 674,009) in view of MacDonald et al.?

The references, alone or together, neither teach nor suggest the blast resistant container assembly of claims 1, 10-11, 14, 33 and 34, for the reasons that follow.

It is the Examiner's position that Lewis discloses the claimed invention except for the blast mitigating material. Appellants respectfully disagree. Lewis discloses that it is known in the art to construct a container from three separate bands of material. However, Lewis fails to disclose or suggest that its bands are blast resistant or that any portion of them should be formed from fiber (see amended claim 1 and independent claims 32 and 47. One of ordinary skill in the art would not consider the bands of "stiff paper" or "stiff cellular paper board" to be blast resistant, regardless of construction mode, and certainly not suggestive of fiber.

MacDonald et al. fails to supply the deficiencies of Lewis. MacDonald et al. teaches the use of reticulated foam balls as explosion suppressing means in ullage-containing containers. There is nothing in MacDonald et al., however, that teaches or suggests the collapsible container of blast resistant material claimed by Appellants, nor the fibrous material of the claims. It is respectfully submitted that MacDonald et al. is no more relevant than the art cited by Appellants in the paragraph bridging pages 2 and 3 of the specification. The only way that one can arrive at Appellants' claimed fibrous material from Lewis and/or MacDonald is with the impermissible use of hindsight, not by what either of these references fairly teaches.

F. Is claim 32 unpatentable under 35 U.S.C. §103(a) over Prevorsek et al. in view of Lewis and Gettle et al.?

The references, alone or together, neither teach nor suggest the blast resistant container assembly of claim 32 for the reasons that follow.

The Examiner states that Prevorsek et al. teaches, at column 10, lines 48-56, the use of two or more reinforcing bands arranged at varying angles. Appellants respectfully disagree that the Prevorsek et al. teaching here is directed to reinforcing bands. Rather, Prevorsek et al. is referring to the materials of construction for girdle 18 in Figure 2. The angular orientation of adjacent

layers of fibers, e.g., at 0/90, creates a material commercially available from Honeywell International Inc., formerly AlliedSignal Inc. (assignee of record of the present invention), as SPECTRA SHIELD® or GOLD SHIELD® ballistic material. This material is then wrapped to form a girdle 18 about stacked fibrous layers. Such a construction was used in panels or faces for a container, but there is absolutely nothing in Prevorsek et al. to suggest the use of bands to form a container. A container must be able to contain something. Reference to Figure 2 of Prevorsek et al. will show that the material could be used to form a container, but as such, does not form a container. These deficiencies of Prevorsek et al. are not met by Lewis and/or Gettle et al. for the reasons previously given. There is absolutely no motivation for one of ordinary skill in the art to combine these references.

G. Are claims 47, 51 and 52 unpatentable under 35 U.S.C. §103(a) over Galber in view of MacDonald et al. and Prevorsek et al.?

The references, alone or together, neither teach nor suggest the blast directing container assembly of claims 47, 51 and 52, for the reasons previously given with respect to these references. Similarly, Appellants disagree with the citation of In re Aller for the reasons previously given.

H. Are claims 47 and 53 unpatentable under 35 U.S.C. §103(a) over Galber in view of Gettle et al. and Prevorsek et al.?

The references, alone or together, neither teach nor suggest the blast directing container assembly of claims 47 and 53, for the reasons previously given with respect to these references.



CONCLUSION

For the reasons stated, Appellants respectfully submit that the claims on appeal, i.e., claims 1, 3-11, 13-47 and 51-53, should be found allowable.

Respectfully submitted,
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IX. APPENDIX - CLAIMS

1. A blast resistant container assembly for receiving an explosive, said container assembly comprising:
 - a. a container of blast resistant material, said container being collapsible for storage when empty and comprising a plurality of faces, each face being connected to another face at at least one common edge with a fibrous material, said fibrous material functioning as a hinge between said faces; and
 - b. blast mitigating material located within the container.
3. The container assembly of claim 1 wherein the fibrous material comprises at least one fibrous layer, said fibrous layer comprising at least one network of high strength fibers having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.
4. The container assembly of claim 3 wherein at least about 50 weight percent of said fibers are substantially continuous, parallel lengths of fiber substantially perpendicular to said edge.
5. The container assembly of claim 4 wherein the network of fibers is in a resin matrix.
6. The container assembly of claim 4 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates, condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.
7. The container assembly of claim 4 wherein said blast mitigating material comprises an aqueous foam.
8. The container assembly of claim 1 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates, condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.
9. The container assembly of claim 1 wherein said blast mitigating material comprises an aqueous foam.
10. A blast resistant container assembly for receiving an explosive, said container assembly comprising:



- a. a container comprising a plurality of bands which are oriented relative to one another when assembled to substantially enclose a volume and to form a container wall, said bands being collapsible for storage when disassembled, at least one of said bands comprising blast resistant material; and
- b. blast mitigating material located within the container.

11. The container assembly of claim 10 wherein said bands are at least three in number and comprise a first inner band nested within a second band which is nested within a third band, said bands forming a container wall having a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands.

13. The container assembly of claim 11 wherein said first inner band includes a foldable flap on each side thereof.

14. The container assembly of claim 11 wherein each of said first, second, and third bands is a tube having a longitudinal axis, and wherein the longitudinal axes of said first, second, and third bands are substantially perpendicular to one another.

15. The container assembly of claim 11 wherein each of said bands comprises a plurality of faces, each face being connected to another face at at least one common edge with a fibrous material, said fibrous material functioning as a hinge between said faces.

16. The container assembly of claim 15 wherein the fibrous material comprises at least one fibrous layer, said fibrous layer comprising at least one network of high strength fibers having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

17. The container assembly of claim 16 wherein at least about 50 weight percent of said fibers are substantially continuous, parallel lengths of fiber perpendicular to said edge.

18. The container assembly of claim 17 wherein the network of fibers is in a resin matrix.

19. The container assembly of claim 15 wherein the faces of at least one band are rigid.

20. The container assembly of claim 1 wherein the blast resistant material comprises at least one fibrous layer, said fibrous layer comprising at

least one network of fibers, at least about 50 weight percent of said fibers being substantially continuous lengths of fiber that encircle the enclosed volume.

21. The container assembly of claim 20 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume.

22. The container assembly of claim 20 wherein substantially all of the fibers are continuous lengths of fiber that encircle the enclosed volume.

23. The container assembly of claim 20 wherein the fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

24. The container assembly of claim 22 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

25. The container assembly of claim 23 wherein said fibers are polyolefin fibers.

26. The container assembly of claim 23 wherein said fibers are aramid fibers.

27. The container assembly of claim 23 wherein the network of fibers is in a resin matrix.

28. The container assembly of claim 27 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates, condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.

29. The container assembly of claim 27 wherein said blast mitigating material comprises an aqueous foam.

30. The container assembly of claim 23 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates, condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.

31. The container assembly of claim 23 wherein said blast mitigating material comprises an aqueous foam.

32. A blast resistant container assembly for receiving an explosive, said container assembly comprising:

a. at least three seamless bands of a blast resistant material comprising high strength fibers having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d, said bands being nested one within the other when assembled with their longitudinal axes at right angles to one another to substantially enclose a volume and to form a container wall having a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands, said bands being collapsible for storage when disassembled; and

b. an aqueous foam located within the inner band and having a density in the range of from about 0.01 to about 0.10 g/cm³.

33. A blast resistant container assembly for receiving an explosive, said container assembly comprising:

a. at least three bands of material, a first inner band being nested within a second band which is nested within a third band, said bands being oriented relative to one another to substantially enclose a volume and to form a container wall having a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands; and

b. blast mitigating material located within the inner band.

34. The container assembly of claim 33 wherein each of said first, second, and third bands is a tube having a longitudinal axis, and wherein the longitudinal axes of said first, second, and third bands are substantially perpendicular to one another.

35. The container assembly of claim 33 wherein at least one of the bands comprises at least one fibrous layer, said fibrous layer comprising at least one network of fibers, at least about 50 weight percent of said fibers being substantially continuous lengths of fiber that encircle the enclosed volume.

36. The container assembly of claim 35 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume.

37. The container assembly of claim 35 wherein substantially all of the fibers are continuous lengths of fiber that encircle the enclosed volume.

38. The container assembly of claim 35 wherein the fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

39. The container assembly of claim 38 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

40. The container assembly of claim 38 wherein said fibers are polyolefin fibers.

41. The container assembly of claim 38 wherein said fibers are aramid fibers.

42. The container assembly of claim 38 wherein the network of fibers is in a resin matrix.

43. The container assembly of claim 42 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates, condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.

44. The container assembly of claim 42 wherein said blast mitigating material comprises an aqueous foam.

45. The container assembly of claim 33 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates, condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.

46. The container assembly of claim 33 wherein said blast mitigating material comprises an aqueous foam.

47. A blast directing container assembly for receiving an explosive, said container assembly comprising:

- a. at least one closed band of blast resistant material encircling a volume, said band having two open sides, said material comprising a network of high strength fibers, at least about 50 weight percent of said fibers comprising continuous lengths in the direction of the band; and
- b. blast mitigating material located within the volume encircled by the band.

51. The container assembly of claim 47 wherein the band is collapsible for storage when empty.

52. The container assembly of claim 47 wherein said blast mitigating material is selected from the group consisting of polymeric foams, particulates,



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condensable gases, heat sink materials, foamed glass, microballoons, balloons, bladders, hollow spheres, wicking fibers, and combinations thereof.

53. The container assembly of claim 47 wherein said blast mitigating material comprises an aqueous foam.